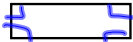


8-4 Rectangles

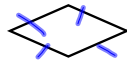
8-5 Rhombi and Squares

Rectangles, Rhombi, and Squares are all parallelograms

Rectangle--quadrilateral with 4 right angles



Rhombus--quadrilateral with 4 congruent sides

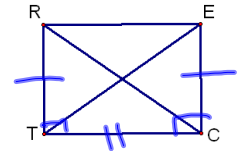


Square--quadrilateral with 4 right angles and 4 congruent sides



Given: Rectangle RECT

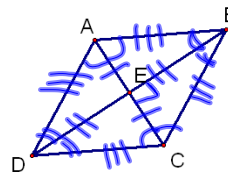
Prove: $\overline{RC} \cong \overline{TE}$



$$\begin{aligned} \triangle RTC &\cong \triangle ECT && \text{SAS} \\ \overline{RC} &\cong \overline{ET} && \text{CPCTC} \end{aligned}$$

Theorem 8.13--Diagonals of a rectangle are congruent

Theorem 8.14--If the diagonals of a parallelogram are congruent, then it is a rectangle.

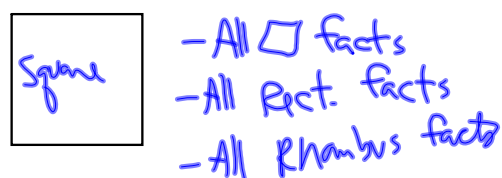
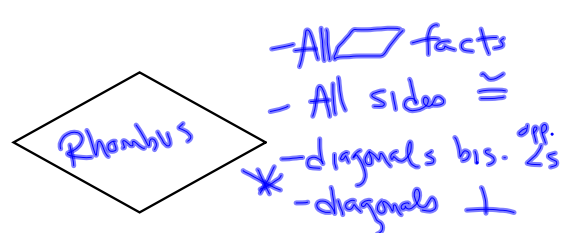
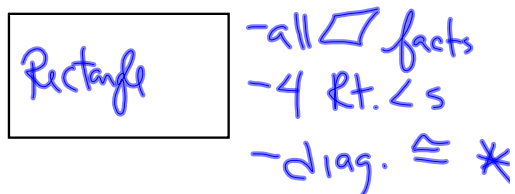
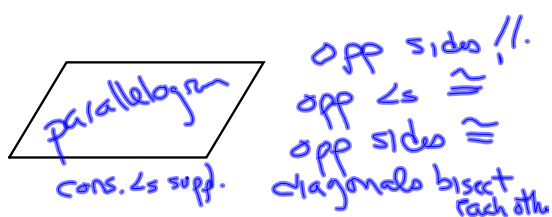
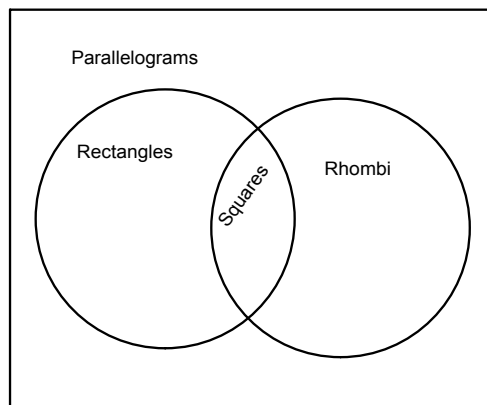


Rhombus ABCD

Theorem 8.15--The diagonals of a rhombus are perpendicular

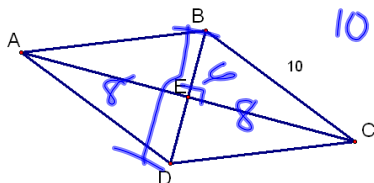
Theorem 8.16--If the diagonals of a parallelogram are perpendicular, then it is a rhombus.

Theorem 8.17--Each diagonal of a rhombus bisects a pair of opposite angles



Rhombus ABCD

AC = 16



Find BD.

12

Is $\square ABCD$ a rectangle, rhombus, or a square. List all that apply.

Check the diagonals
diagonals \cong Rect
diagonals \perp Rhombus

1. A(-7, 3) B(-2, 3) C(1, 7) D(-4, 7)

$$AC = \sqrt{(-7-1)^2 + (3-7)^2} = \sqrt{64 + 16} = \sqrt{80}$$

$$BD = \sqrt{(-2-(-4))^2 + (3-7)^2} = \sqrt{4 + 16} = \sqrt{20}$$

2. A(-2, -1) B(-4, 3) C(1, 5) D(3, 1)

$$AC = \sqrt{(-2-1)^2 + (-1-5)^2} = \sqrt{9 + 36} = \sqrt{45}$$

$$BD = \sqrt{(-4-3)^2 + (3-1)^2} = \sqrt{49 + 4} = \sqrt{53}$$

Not Rect.

$$\overline{AC} \text{ } m = \frac{4}{8} = \frac{1}{2}$$

$$\overline{BD} \text{ } m = \frac{4}{-2} = -2$$

Rhombus

HW

p428-429

10, 11, 16-24, 27, 29

p434-435

12-20, 26-31